Use Attainability Analysis

for

WBID 530 Sheep Creek

Submitted by
BWR

July 11, 2007

Submitted to:
Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	SHEEP CREEK
Missouri Water Body Identification (WBID) Number:	530
8-digit HUC: 10280101	County: CALDWELL
Upstream Legal Description (from Table H):	1, 56N, 29W
Downstream Legal Description(from Table H):	MOUTH
Number of sites evaluated	3
List all sites numbers, listed consequently upstream to downstream:	3, 2, 1

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Subegmentation (fill this section out only in cases where subesgmentation is being proposed) N/A

Upstream Coordinates: UTM X Y		Downstream Coordinates: UTM X Y	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters		
PDOP		± _____ Feet or ± _____ Meters	

III. Discharger Facility Information (list all permitted dischargers on the stream)

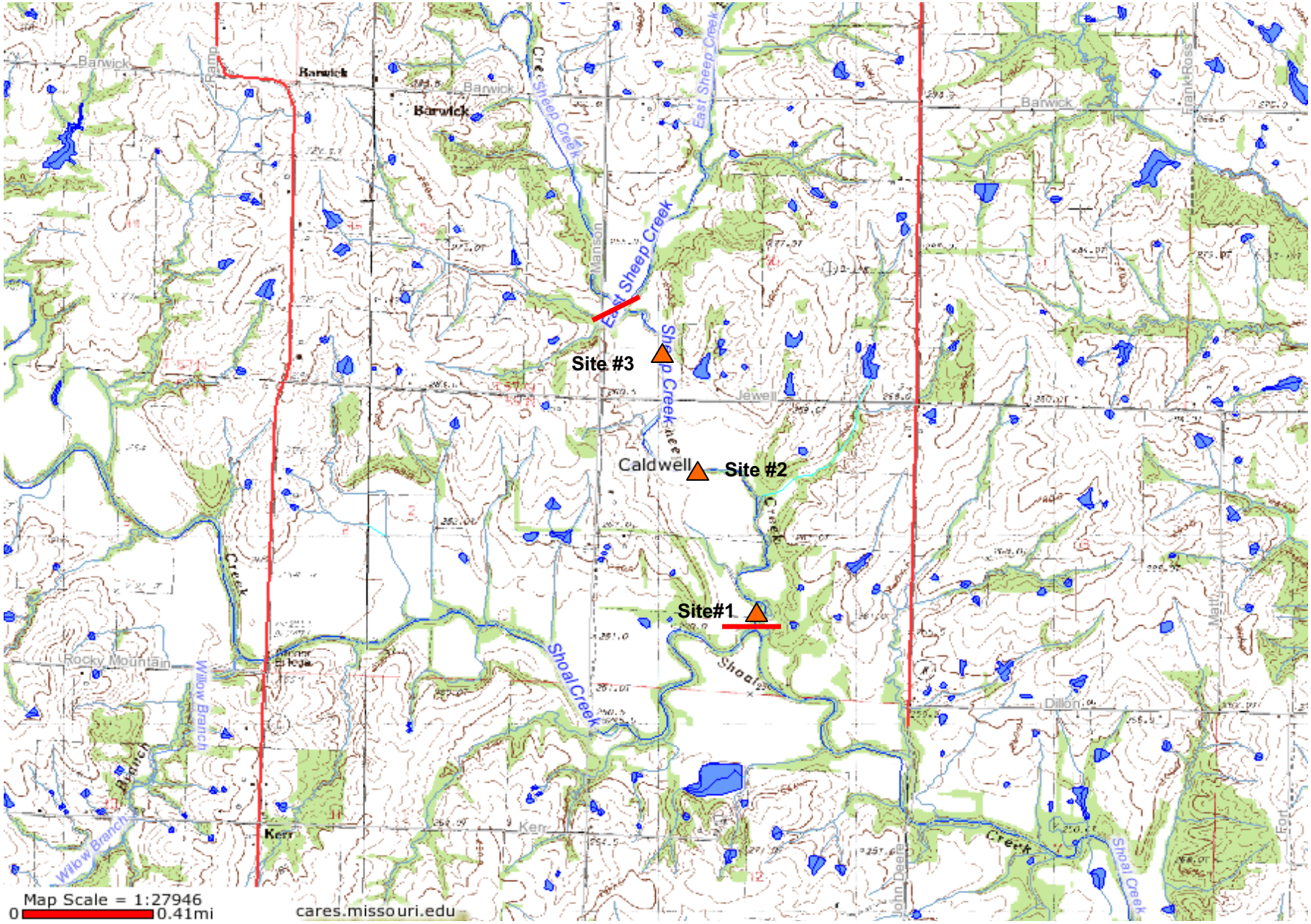
Discharger Facility Name(s):	KIDDER WWTF
Discharger Permit Number(s):	MO0118591

IV. UAA Surveyor (please print legibly)

Name of Surveyor ALEX BARTLETT	Telephone Number: 816.363.2696
Organization/Employer: BWR CORPORATION	
Position: ENVIRONMENTAL SCIENTIST	

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

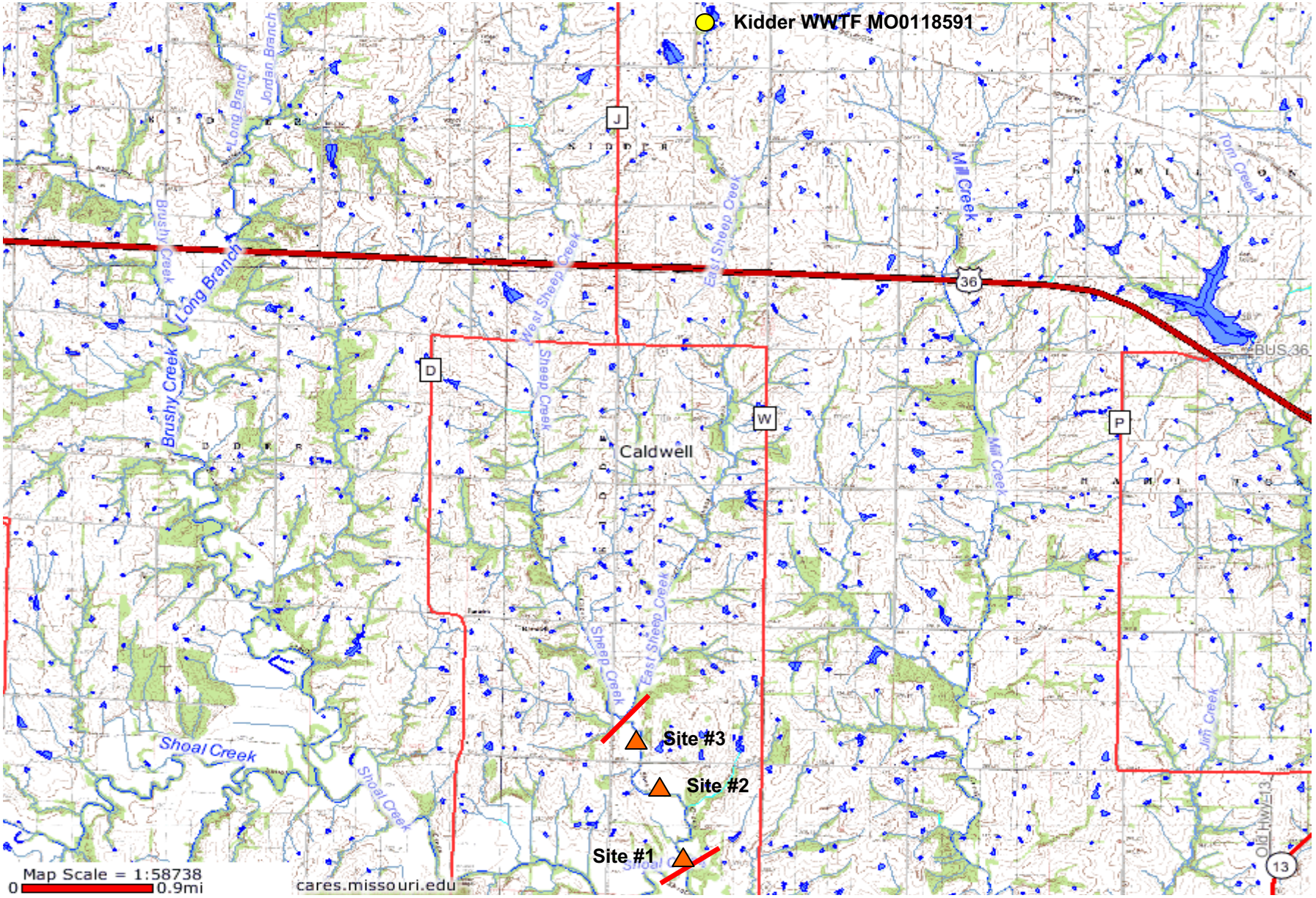
Signed: _____ **Date:** 6/19/07



BWR
Right in the Center

Sheep Creek
WBID #530

N



BWR
Right in the Center

Sheep Creek
WBID #530

(Showing Kidder WWTF MO0118591) Pg. 2 of 2

N

WBID# 530
Site# 1

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 6/19/07 1630	Site Location Description (e.g., road crossing): UPSTREAM OF CONFLUENCE WITH SHOAL CRK.
Personnel (Data Collectors): BARTLETT & LUNT	
Current Weather Conditions: CLEAR ~ 80°	Facility Name: KIDDER WWTF
Weather Conditions for Past 10 days: FAIR	Permit Number: MO0118591
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

CONFLUENCE

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 39.68887 Y: 094.10239 (TAKEN ~150m UP FROM)

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
530-3,4	TRAN. J-K	530-1,2,	TRAN B-A		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☒ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments:

CHANNEL FEATURE %
RUN: 95 RIFFLE: 5
POOL:

*** Page Two – Data Sheet B for WBID #** 530 **:** #1
Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	20 % Gravel	70 % Sand	10 % Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

SOME MACROPHYTE GROWTH ON BANKS; SPARSE ALGAL GROWTH ON SAND.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☒ Foam	☐ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #1

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
TA	1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
	2	1.0	<0.1			2 RUN	
	3		<0.1			3	
	4	MEASUREMENTS	<0.1			4 DISSOLVED OXYGEN:	
	5	0.1 m	<0.1			5	
	6	APART	<0.1			6 9.18 ppm	
	7		<0.1			7	
	8		<0.1			8	
	9		<0.1			9	
	10		<0.1			10	
						11	
TB	1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
	2	1.2	<0.1			13 RUN	
	3		<0.1			14	
	4	MEASUREMENTS	<0.1			15 DISSOLVED OXYGEN:	
	5	0.12 m	<0.1			16	
	6	APART	<0.1			17 8.79 ppm	
	7		<0.1			18	
	8		<0.1			19	
	9		<0.1			20	
	10		<0.1			21	
						22 CHANNEL FEATURE:	
TC	1	WETTED WIDTH	<0.1			23 RUN	
	2	2.10	<0.1			24	
	3		<0.1			25 DISSOLVED OXYGEN:	
	4	MEASUREMENTS	<0.1			26	
	5	0.20 m	<0.1			. 8.82 ppm	
	6	APART	<0.1			.	
	7		<0.1			.	
	8		<0.1			n	
	9		<0.1				
	10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
1	WETTED WIDTH	<0.1			1 CHANNEL	FEATURE:
2	2.4	<0.1			2 RUN	~~0.84~~
3		<0.1			3	
4	MEASUREMENTS	<0.1			4 DISSOLVED	OXYGEN:
5	0.24 m	<0.1			5	8.57
6	APART	<0.1			6	ppm
7		<0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11 CHANNEL	FEATURE:
1	WETTED WIDTH	<0.1			12 RUN	
2	2.0	<0.1			13	
3		<0.1			14 DISSOLVED	OXYGEN:
4	MEASUREMENTS	<0.1			15	
5	0.20 m	<0.1			16 8.31	ppm
6	APART	<0.1			17	
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22 CHANNEL	FEATURE:
1	WETTED WIDTH	<0.1			23 RUN	
2	1.6	<0.1			24	
3		<0.1			25	
4	MEASUREMENTS	<0.1			26 DISSOLVED	OXYGEN:
5	0.16 m	<0.1			.	
6	APART	<0.1			. 8.51	ppm
7		<0.1			.	
8		0.1			n	
9		0.1				
10		0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BLM COEP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
T_G 1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
2	2.2	<0.1			2 RUN	
3		<0.1			3	
4	MEASUREMENTS	<0.1			4 DISSOLVED OXYGEN:	
5	0.27 m	<0.1			5	
6	APART	<0.1			6 8.37	ppm
7		<0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11	
T_H 1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
2	RM 1.8	<0.1			13 RUN	
3		<0.1			14	
4	MEASUREMENTS	<0.1			15 DISSOLVED OXYGEN:	
5	0.18 m	<0.1			16	
6	APART	<0.1			17 8.52	ppm
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22	
T_I 1	WETTED WIDTH	<0.1			23 CHANNEL FEATURE:	
2	4.0	<0.1			24 RUN	
3		<0.1			25	
4		<0.1			26 DISSOLVED OXYGEN:	
5	MEASUREMENTS	<0.1			.	
6	0.40 m	<0.1			. 8.41	ppm
7	APART	<0.1			.	
8		<0.1			n	
9		<0.1				
10		<0.1				

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If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

S30 #1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
TJ 1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
2	1.2	0.1			2 RIFFLE	
3		0.1			3	
4	MEASUREMENTS	0.1			4 DISSOLVED OXYGEN:	
5	0.12 m	0.1			5	
6	APART	0.1			6 8.70	ppm
7		0.1			7	
8		0.1			8	
9		<0.1			9	
10		<0.1			10	
					11	
1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
2	4.2	<0.1			13 RUN	
3		<0.1			14	
TK 4	MEASUREMENTS	<0.1			15 DISSOLVED OXYGEN:	
5	0.42 m	<0.1			16	
6	APART	<0.1			17 8.31	ppm
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22	
					23	
					24	
					25	
					26	
					.	
					.	
					.	
					n	

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

WBID# 530
Site# 2

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 6/19/07 1730	Site Location Description (e.g., road crossing): ~MIDWAY BETWEEN SITES 1 & 3.
Personnel (Data Collectors): BARTLETT & LUNT	
Current Weather Conditions: SUNNY ~80°	Facility Name: KIDDER WWTF
Weather Conditions for Past 10 days: FAIR	Permit Number: MO 0118591
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 39.695478 Y: 094.10573

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
530-7,8	TRAN J-K	530-5,6	TRAN. B-A		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☒ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments:

CHANNEL FEATURE %
RUN: 100 RIFFLE: ____
~~RIFFLE~~
POOL: ____

*** Page Two – Data Sheet B for WBID #** 530 **:** #2
Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	20 % Gravel	70 % Sand	10 % Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

SOME MACROPHYTES ON BANKS; SPARSE ALGAL GROWTH ON SAND.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☒ Foam	☐ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
TA 1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
2	2.5	<0.1			2 RUN	
3		<0.1			3	
4	MEASUREMENTS	<0.1			4 DISSOLVED OXYGEN:	
5	0.25 m	<0.1			5	
6	APART	<0.1			6 8.64	ppm
7		<0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11	
TB 1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
2	3.2	<0.1			13 RUN	
3		<0.1			14	
4	MEASUREMENTS	<0.1			15 DISSOLVED OXYGEN:	
5	0.32 m	<0.1			16	
6	APART	<0.1			17 8.21	ppm
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22 CHANNEL FEATURE:	
TC 1	WETTED WIDTH	<0.1			23 RUN	
2	2.2	<0.1			24	
3		<0.1			25 DISSOLVED OXYGEN:	
4	MEASUREMENTS	<0.1			26	
5	0.22 m	<0.1			. 8.40	ppm
6	APART	<0.1			.	
7		<0.1			.	
8		<0.1			n	
9		<0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BLM CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
1	WETTED WIDTH	<0.1			1 CHANNEL	FEATURE :
2	3.8	<0.1			2 RUN	
3		<0.1			3	
4	MEASUREMENTS	<0.1			4 DISSOLVED	OXYGEN :
5	0.38 m	<0.1			5	
6	APART	<0.1			6 8.46	ppm
7		<0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11 CHANNEL	FEATURE :
1	WETTED WIDTH	<0.1			12 RUN	
2	3.2	<0.1			13	
3		<0.1			14 DISSOLVED	OXYGEN :
4	MEASUREMENTS	<0.1			15	
5	0.32 m	<0.1			16 8.47	ppm
6	APART	<0.1			17	
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22 CHANNEL	FEATURE :
1	WETTED WIDTH	<0.1			23 RUN	
2	1.6	<0.1			24	
3		<0.1			25	
4	MEASUREMENTS	<0.1			26 DISSOLVED	OXYGEN :
5	0.18 m	<0.1			.	
6	APART	0.1			. 8.54	ppm
7		<0.1			.	
8		<0.1			n	
9		<0.1				
10		<0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
T_G 1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
2	1.7	<0.1			2 RUN	
3		<0.1			3	
4	MEASUREMENTS	<0.1			4 DISSOLVED OXYGEN:	
5	0.17 m	<0.1			5	
6	APART	<0.1			6 8.33	ppm
7		<0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11	
T_H 1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
2	2.3	<0.1			13 RUN	
3		<0.1			14	
4	MEASUREMENTS	<0.1			15 DISSOLVED OXYGEN:	
5	0.23 m	<0.1			16	
6	APART	<0.1			17 8.38	ppm
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22	
T_I 1	WETTED WIDTH	<0.1			23 CHANNEL FEATURE:	
2	0.8	<0.1			24 RUN	
3		0.1			25	
4		0.1			26 DISSOLVED OXYGEN:	
5	MEASUREMENTS	0.1			.	
6	0.08 m	0.1			. 8.49	ppm
7	APART	0.1			.	
8		0.1			n	
9		0.1				
10		0.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BWR COPP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
TJ 1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
2	4.0	0.1			2 RUN	
3		0.1			3	
4	MEASUREMENTS	0.1			4 DISSOLVED OXYGEN:	
5	0.40 m	<0.1			5	
6	APART	<0.1			6 8.45	ppm
7		0.1			7	
8		0.1			8	
9		<0.1			9	
10		<0.1			10	
					11	
1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
2	3.5	0.1			13 RUN	
3		0.1			14	
TK 4	MEASUREMENTS	0.1			15 DISSOLVED OXYGEN:	
5	0.35 m	0.1			16	
6	APART	0.1			17 8.28	ppm
7		0.1			18	
8		0.1			19	
9		<0.1			20	
10		<0.1			21	
					22	
					23	
					24	
					25	
					26	
					.	
					.	
					.	
					n	

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

WBID# 530
Site# 3

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 6/19/07 1830	Site Location Description (e.g., road crossing): ROAD CROSSING @ JEWELL RD.
Personnel (Data Collectors): BARTLETT & CWT	
Current Weather Conditions: CLEAR ~80°F	Facility Name: KIDDER WWTF
Weather Conditions for Past 10 days: FAIR	Permit Number: MO 0118591
Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 394.69905 Y: 0974.10800

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

→ BOARD MISSING SITE #

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
530-11,12	TRAN. J-K	530-9,10	TRAN. B-A		

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☒ Fence	☒ Steep slopes	☐ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: JEWELL RD.

CHANNEL FEATURE %
RUN: 50 RIFFLE: ____
POOL: 50

*** Page Two – Data Sheet B for WBID #** S30 **:**
Stream Morphology:

#30

Upstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	20 % Gravel	50 % Sand	30 % Silt	% Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

SPARSE ALGAL GROWTH ON SAND.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☒ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: _____ Date of Survey: 6/19/2007

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #3

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
TA	1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
	2	6.0	0.1			2 RUN	
	3		0.1			3	
	4	MEASUREMENTS	0.1			4 DISSOLVED OXYGEN:	
	5	0.60 m	0.1			5	
	6	APART	<0.1			6 7.34 ppm	
	7		<0.1			7	
	8		0.1			8	
	9		0.1			9	
	10		<0.1			10	
						11	
TB	1	WETTED WIDTH	0.1			12 CHANNEL FEATURE:	
	2	7.6	0.1			13 RUN	
	3		0.2			14	
	4	MEASUREMENTS	0.2			15 DISSOLVED OXYGEN:	
	5	0.76 m	0.3			16	
	6	APART	0.3			17 7.92 ppm	
	7		0.4			18	
	8		0.3			19	
	9		0.3			20	
	10		0.2			21	
						22 CHANNEL FEATURE:	
TC	1	WETTED WIDTH	0.1			23 POOL	
	2	8.0	0.1			24	
	3		0.2			25 DISSOLVED OXYGEN:	
	4	MEASUREMENTS	0.4			26	
	5	0.80 m	0.5			. 8.55 ppm	
	6	APART	0.5			.	
	7		0.4			.	
	8		0.3			n	
	9		0.5				
	10		0.4				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: _____ **Date:** 6/19/07

Organization: BLR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
1	WETTED WIDTH	0.1			1 CHANNEL	FEATURE :
2	4.5	0.2			2 POOL	
3		0.3			3	
4	MEASUREMENTS	0.3			4 DISSOLVED	OXYGEN :
5	0.45 m	0.4			5	
6	APART	0.2			6 7.54	ppm
7		0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11 CHANNEL	FEATURE :
1	WETTED WIDTH	0,7			12 POOL	
2	6.7	0.2			13	
3		0.2			14 DISSOLVED	OXYGEN :
4	MEASUREMENTS	0.2			15	
5	0.67 m	0.3			16 7.35	ppm
6	APART	0,3			17	
7		0.2			18	
8		0.2			19	
9		0,1			20	
10		0.1			21	
					22 CHANNEL	FEATURE :
1	WETTED WIDTH	<0.1			23 POOL	
2	4.0	<0.1			24	
3		0,1			25	
4	MEASUREMENTS	0.1			26 DISSOLVED	OXYGEN :
5	0.40 m	0.1			.	
6	APART	0.1			. 7.69	ppm
7		0.2			.	
8		0.2			n	
9		0.2				
10		0.3				

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Signed: _____ **Date:** 6/19/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
T_G 1	WETTED WIDTH	< 0.1			1 CHANNEL FEATURE:	
2	5.3	< 0.1			2 POOL	
3		< 0.1			3	
4	MEASUREMENTS	0.1			4 DISSOLVED OXYGEN:	
5	0.53 m	0.1			5	
6	APART	0.2			6 7.63	ppm
7		0.3			7	
8		0.3			8	
9		0.2			9	
10		0.1			10	
					11	
1	WETTED WIDTH	< 0.1			12 CHANNEL FEATURE:	
T_H 2	5.0	0.1			13 POOL	
3		0.3			14	
4	MEASUREMENTS	0.5			15 DISSOLVED OXYGEN:	
5	0.50 m	0.5			16	
6	APART	0.6			17 7.73	ppm
7		0.6			18	
8		0.6			19	
9		0.5			20	
10		0.5			21	
					22	
1	WETTED WIDTH	< 0.1			23 CHANNEL FEATURE:	
T_I 2	1.5	< 0.1			24 RUN	
3		0.1			25	
4		0.1			26 DISSOLVED OXYGEN:	
5	MEASUREMENTS	0.1			.	
6	0.15 m	0.1			. 7.92	ppm
7	APART	0.1			.	
8		0.1			n	
9		0.1				
10		0.1				

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Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

530 #3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
TJ 1	WETTED WIDTH	<0.1			1 CHANNEL FEATURE:	
2	2.0	<0.1			2 RUN	
3		<0.1			3	
4	MEASUREMENTS	<0.1			4 DISSOLVED OXYGEN:	
5	0.20 m	<0.1			5	
6	APART	<0.1			6 8.41	ppm
7		<0.1			7	
8		<0.1			8	
9		<0.1			9	
10		<0.1			10	
					11	
1	WETTED WIDTH	<0.1			12 CHANNEL FEATURE:	
2	2.2	<0.1			13 RUN	
3		<0.1			14	
TK 4	MEASUREMENTS	<0.1			15 DISSOLVED OXYGEN:	
5	0.22 m	<0.1			16	
6	APART	<0.1			17 8.33	ppm
7		<0.1			18	
8		<0.1			19	
9		<0.1			20	
10		<0.1			21	
					22	
					23	
					24	
					25	
					26	
					.	
					.	
					.	
					n	

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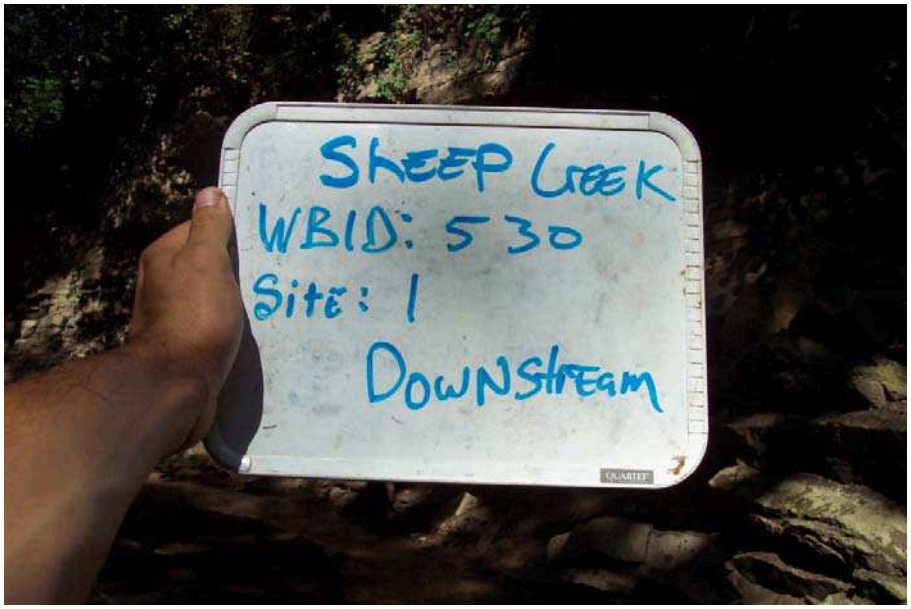
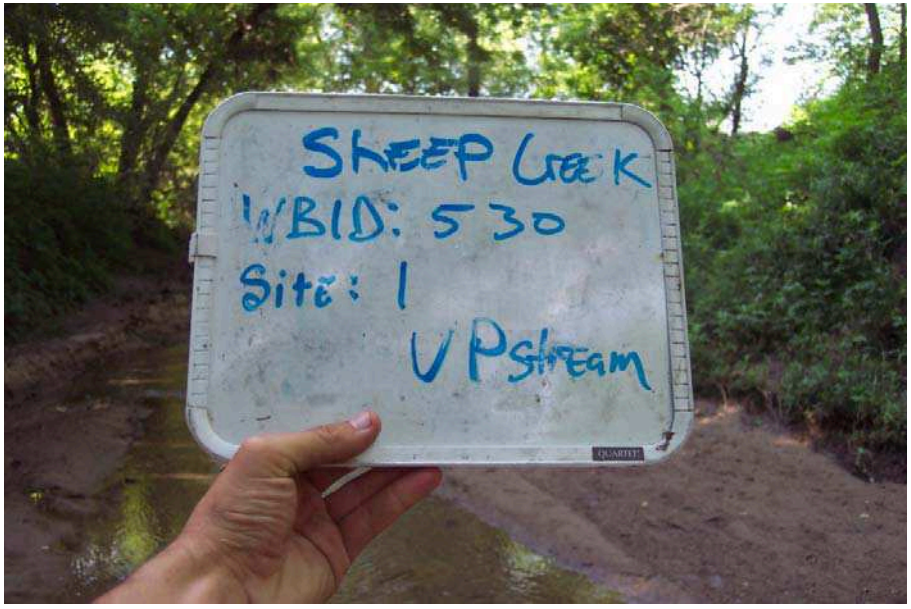
Organization: BWR CORP. Position: ENV. SCI.



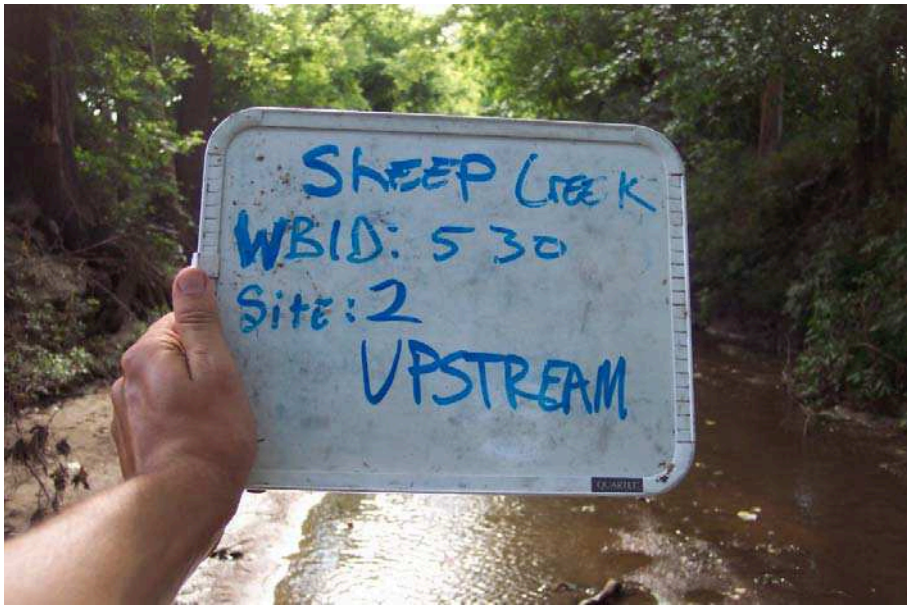
Downstream (Site #1) of Sheep Creek

Downstream (Site #1) of Sheep Creek



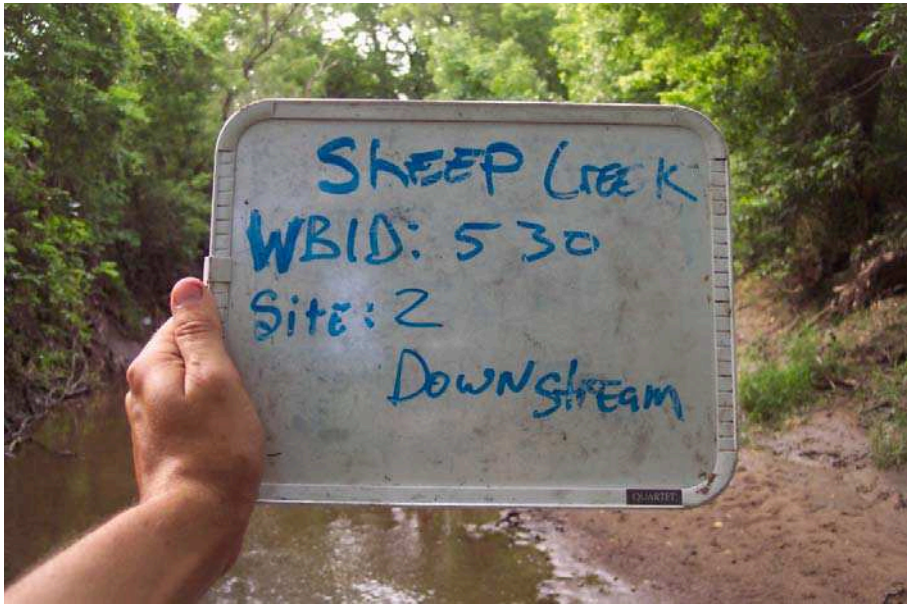
Upstream (Site #1) of Sheep Creek

Upstream (Site #1) of Sheep Creek



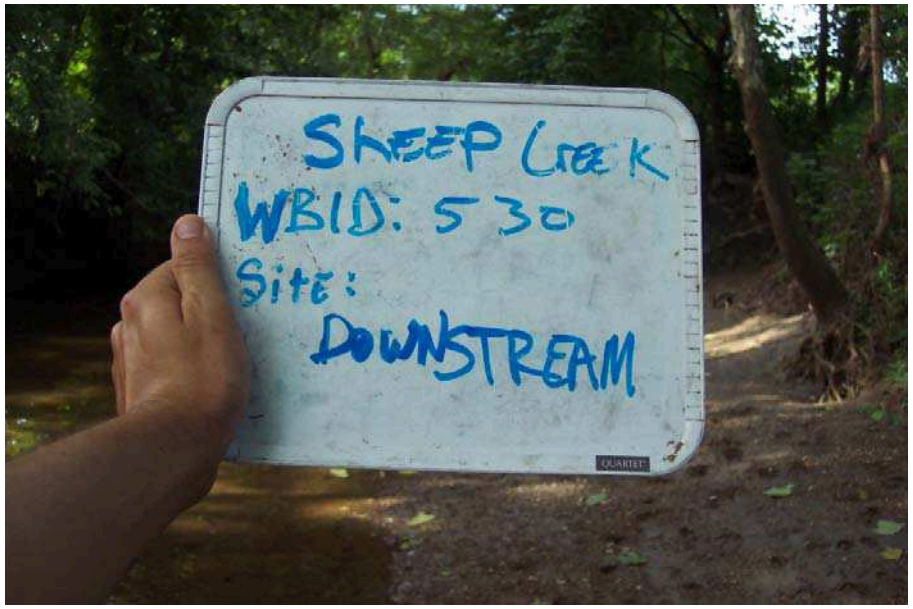
Upstream (Site #2) of Sheep Creek

Upstream (Site #2) of Sheep Creek



Downstream (Site #2) of Sheep Creek

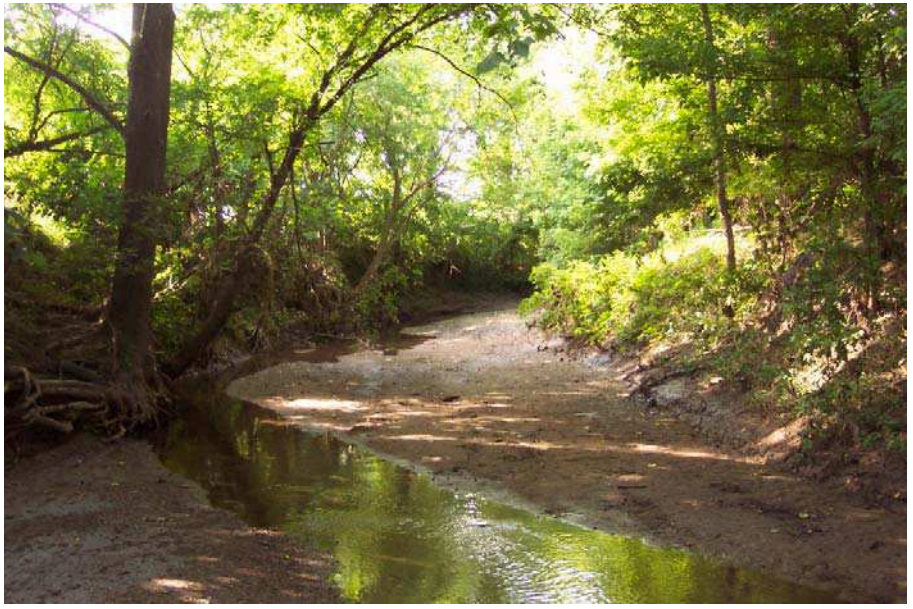
Downstream (Site #2) of Sheep Creek



Downstream (Site #3) of Sheep Creek

Downstream (Site #3) of Sheep Creek

Upstream (Site #3) of Sheep Creek



Upstream (Site #3) of Sheep Creek